

Serial No. 09/990,964

LISTING OF CLAIMS:

Please reconsider the claims as follows:

1 1. (currently amended) Apparatus adapted for use in an optical
2 communication system, comprising:
3 a modulator, for modulating an optical phase of pulses within a sequence of
4 return-to-zero (RZ) pulses in accordance with an input digital data stream to form an
5 optical phase modulated signal in which each pulse in the sequence of RZ pulses has
6 associated with it an E-field value representing a phase wherein for each bit interval, the
7 E-field value starts and ends at zero, and the E-field value is positive or negative at about
8 the mid-point of the bit interval, that is different than a phase of pulses temporally
9 adjacent to it; and
10 a means for applying the optical phase modulated signal to a dispersion managed
11 optical transmission medium.

1 2. (cancelled)

1 3. (canceled)

1 4. (previously presented) The invention defined in claim 1 wherein said
2 modulator is a phase shift keying (PSK) modulator.

1 5. (currently amended) The invention defined in claim 1 wherein said
2 modulator is a an optical differential phase shift keying ([[O]]DPSK) modulator.

1 6. (currently amended) The invention defined in claim 1 wherein said
2 modulator is a an optical quadrature phase shift keying ([[O]]QPSK) modulator.

1 7. (previously presented) The invention defined in claim 1 wherein said
2 medium is a long haul transmission medium adapted for transmitting solitons.

Serial No. 09/990,964

1 8. (previously presented) The invention defined in claim 1 wherein said
2 medium is adapted for transmitting pulses that disperse as they propagate along the
3 medium.

1 9. (previously presented) The invention defined in claim 1 wherein said
2 apparatus further includes a wavelength division multiplexer adapted to combine an
3 output signal of said modulator with other optical phase modulated signals having optical
4 carriers with different wavelengths.

1 10. (previously presented) The invention defined in claim 1 wherein said
2 modulator is a LiNbO₃ phase modulator.

1 11. (previously presented) The invention defined in claim 1 wherein said
2 modulator is a LiNbO₃ Mach-Zehnder phase modulator.

1 12. (previously presented) The invention defined in claim 1 wherein said
2 apparatus further comprises a receiver including a delay demodulator for receiving the
3 optical phase modulated signal from the dispersion managed optical transmission
4 medium.

1 13. (previously presented) The invention defined in claim 1 wherein said
2 apparatus further comprises a receiver including a balanced receiver for recovering said
3 input data from the phase modulated signal.

14. (canceled)

1 15. (previously presented) The invention defined in claim 1 wherein said
2 transmission medium includes discrete or distributed means of erbium-doped fiber
3 amplification (EDFA) or Raman amplification.

Serial No. 09/990,964

1 16. (currently amended) A method of optical communications, comprising the
2 steps of:
3 modulating an optical carrier signal in a sequence of return-to-zero (RZ) pulses;
4 modulating an optical phase of said pulses in accordance with an input digital
5 data stream to form an optical phase modulated signal in which each pulse in the
6 sequence of RZ pulses has associated with it an E-field value representing a phase
7 wherein for each bit interval, the E-field value starts and ends at zero, and the E-field
8 value is positive or negative at about the mid-point of the bit interval that is different than
9 a phase of pulses temporally adjacent to it; and
10 applying said optical phase modulated signal to a dispersion managed optical
11 transmission medium.

17-18. (canceled)